

cycles



January 1957

FOUNDATION FOR THE STUDY OF CYCLES
New York, New York

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THE DIRECTOR'S LETTER

Dear Member:

The Mosaic

Suppose that one day, when digging in your back yard, you came across some bits of stone which were so regularly shaped that they could not easily have been formed that way by chance. Suppose further that some of these pieces fitted together, as if forming part of a larger pattern.

You would be quite excited. "I have stumbled across some old mosaic," you would say.

Every evening, weather permitting, you would be in the back yard digging and screening. You would bring all the little stones into the house. You would wash them carefully and scrub off the dirt. You would discard some pieces because it would be obvious that they were just stones. On the other hand, some pieces would unquestionably be part of the pattern. With still other pieces you might not be able to tell, one way or the other.

The good pieces and the pieces you could not tell about you would save carefully. You would put them out on a table, fitting them to other pieces where you could, leaving them by themselves where they did not fit any of the pieces so far discovered. Soon a pattern would begin to take shape. You would be more and more excited. "I am really on the track of something," you would say.

So it is with the study of cycles. Here at Foundation Headquarters, sometimes with your help, sometimes alone, we dig out cycles, shine them up, and put them on

the shelf. Some are so regular that there seems to be no question but that they are significant. With others we cannot be so sure. Some fit together with other pieces. Some do not fit at all. And, most exasperating, some almost fit, but not quite, as for example the so-called 33-month cycle which, measured over 168 years, is 32.35 months long in copper prices and 32.55 months long in pig iron prices!

How many pieces of the mosaic we have found to date only the good Lord knows, but there are many. With your help there will be many more. Eventually we may glimpse the master patterns. In the meantime we are making progress.

The Indiction Cycle

One of the pieces is the so-called Indiction Cycle.

The Indiction Cycle is a measure of time used in the old Roman days and in the Middle Ages. It is 15 years long.

The word indiction comes from the Latin word *indictio* which refers to the imposition of a tax. This word *indictio* comes in turn from another Latin word *indicere* meaning to declare. Perhaps we will not be too far wrong if we assume that originally the Romans had property declarations and reassessments at 15-year intervals.

The indiction cycle began to be used extensively by the church historians as early as 350 A.D. in the time of Saint Athanasius, and found increasing favor throughout the Middle Ages as a measure of time.

I like to speculate as to why a cycle of this length came to be adopted originally.

Of course it is fairly easy to see why periodic reassessments were desirable and necessary, and why some uniform time interval seemed desirable. But why 15 years? Why not 12 years, or 10 or 17, or 20 years? Did those old Romans just throw dice to see the time interval to choose for reassessments? Or did 15 years seem a *natural* time interval because things more or less came around to the same place again in that length of time? In other words, was there in Roman life a *cycle* of weather or prices or economic affairs or something else of about 15 years which underlay the choice of 15 years as a natural time interval for the indiction?

I have given you several examples of cycles in human affairs which at the present time have lengths just a fraction short of 15 years. I shall show you what seems to be the same cycle in weather. Were these same cycles operating years ago? And did they cause the 15-year indiction? Of course no one knows, but some times it is fun to speculate.

Reports Too Difficult

When I was in New York last week, Mrs. Roessle, our Membership Secretary and Publication Manager, told me that some of our members were resigning because, as they put it, "the reports are above their heads."

This is a sorry state of affairs and one that I shall do something about at once.

A Trip

One thing I can do is to take a trip

around the country to meet with our members individually. In this way I can find out first hand what I should do to make the reports simpler and easier for them to understand. Maybe, too, I can clarify some of the things that bother them.

I plan to leave East Brady, Pa. about Dec. 15th; return February 15th. I plan to spend all of my time West of the Mississippi. If you live west of Chicago and are willing to arrange a meeting of members in your town, please write me *at once* at 2342 Hilgard Avenue, Berkeley 9, Calif. Your letter will be forwarded. If I can fit your town into my itinerary, I will give you a date and let you round up the other local members for a meeting.

Simpler Writing

Another thing I can do is to try to take technical matters out of the reports and print them separately. Insofar as time and space permit, I'll print technical matters, dates, calculations, work papers, etc. in the *Journal of Cycle Research*. The *Journal* is a separate publication we issue quarterly for the benefit of our scientific members and those who wish to get into the subject of cycles more deeply.

The first two articles of this issue were written and set into type before this new policy went into effect. However, from this point on, I'm going to try to make the reports so plain that not one single member will be able to say that they are above his head!

Cordially yours,

Edward R. Dewey

Director

Research

TREND AND CYCLES IN STOCK PRICES

FOR the past 86 years the trend of stock prices has been upward. Refer to Fig. 1 which charts as Curve A the Standard & Poor's Corporation Combined Stock Price Index, 1935-39=100, from 1871 through 1956. The trend is shown by the straight line marked B. It has advanced at the rate of 1.93% a year, compounded.

The percentages by which stock prices have been above or below trend are shown as Curve C. At first glance these fluctuations appear entirely random, but study shows that they act as if they were, at least in part, the effect of cyclic forces.

A preliminary cycle study of these fluctuations was made in 1944. That study used these same figures through 1943 and, in addition, used some rail stock price figures 1854-1870. Ten cycles were isolated, with the lengths and characteristics shown in the table below:

Cycle No.	Length in Years	Crest Nearest to Jan. 1, 1944	Strength
1	4.89	1944.63	3.5 %
2	5.50	1941.1	7.0
3	6.07	1941.02	6.0
4	6.86	1943.68	8.3
5	8.17	1946.03	8.2
6	9.2	1946.5	17.2
7	11.0	1941.5	3.8
8	12.0	1939.5	15.1
9	14.5	1943.0	12.25
10	21.0	1950.5	17.0

When expressed in logarithms the typical waves of all cycles seemed to be zigzag in shape and to be symmetrical.

These 10 cycles were then combined, wrapped around a trend as determined in 1939 by the Cowles Commission, and pro-

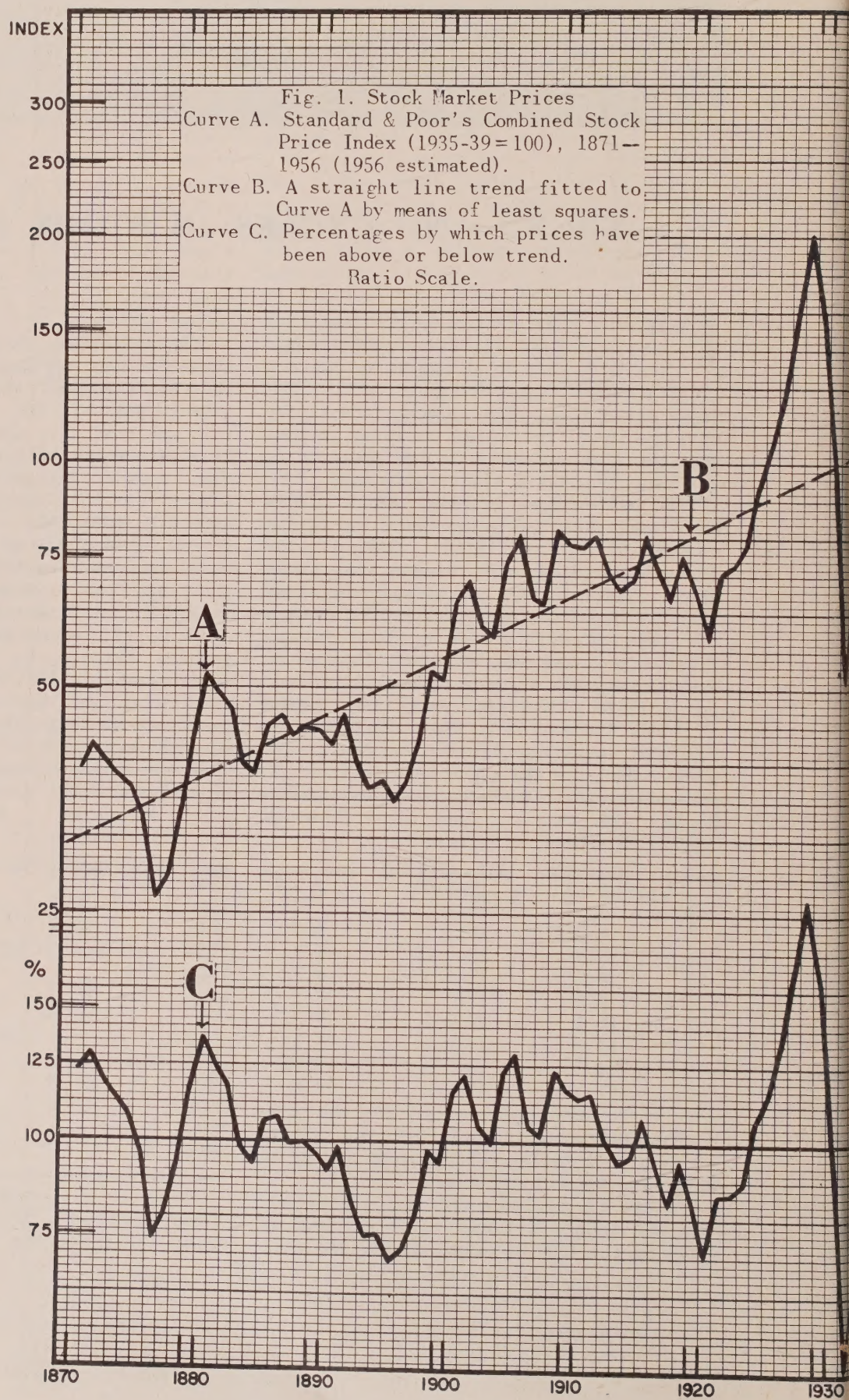
jected to 1990.

The projection forecast that the bull market which had started in 1942 would continue through 1944 and 1945 to reach a peak in 1946. It did. The projection then forecast that this peak would be followed by three years of decline to 1949. This also happened. The projection then forecast a five year bull market faltering in 1953 to end in 1954. The bull market occurred, it checked its rate of advance in 1953, but it did not end in 1954. Following 1954, the projection forecast a six year decline to end in 1960. Instead we have had--to Jan. 1, 1957--two additional years of advance. Whether the following four years will register a decline, no one yet knows.

Profit and loss from a series of imaginary transactions, starting in 1944, would have been as follows:

Year	Buy at	Sell and Short at	Cover at	Gain or Loss	% Gain or Loss
1944	99.8				
1946		139.9		40.1	40.2
1946		139.9			
1949			121.4	18.5	13.2
1949	121.4				
1952		187.7		66.3	54.6
1952		187.7			
1953			189.0	-1.3	-.69
1953	189.0				
1954		226.6		37.6	19.9
1954		226.6			
1960			?	?	?
1960	?				

This record shows gains of 127.9%, losses of .69%. This record makes the gains 185 times the losses on completed



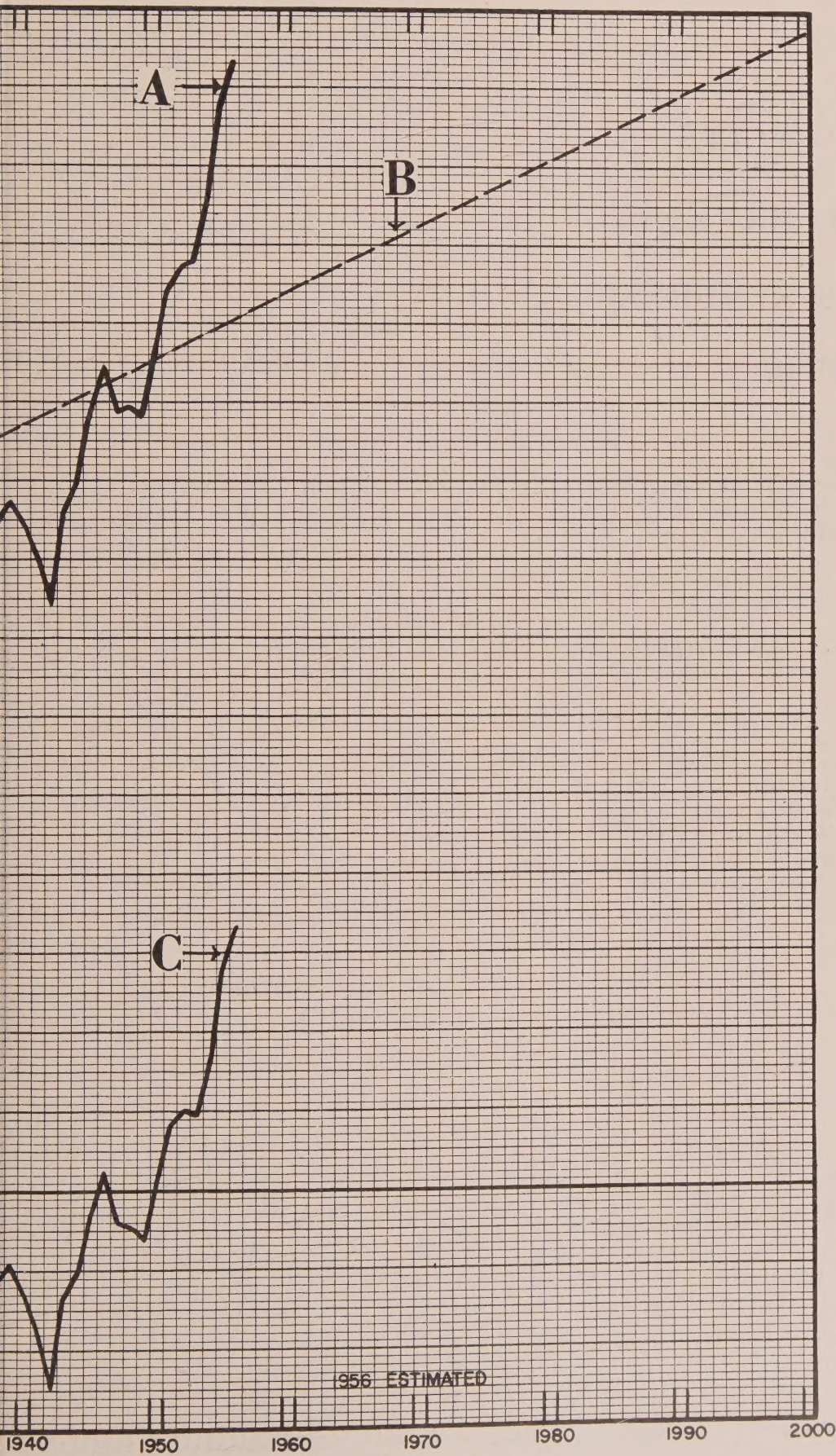


Fig. 2

ELEVEN POSSIBLE CYCLES IN THE STOCK MARKET AND THEIR SYNTHESIS, 1871-1990

CURVES A to J inclusive diagram ten cycles which were revealed as possibly present in the stock market by a preliminary analysis made in 1943 and 1944

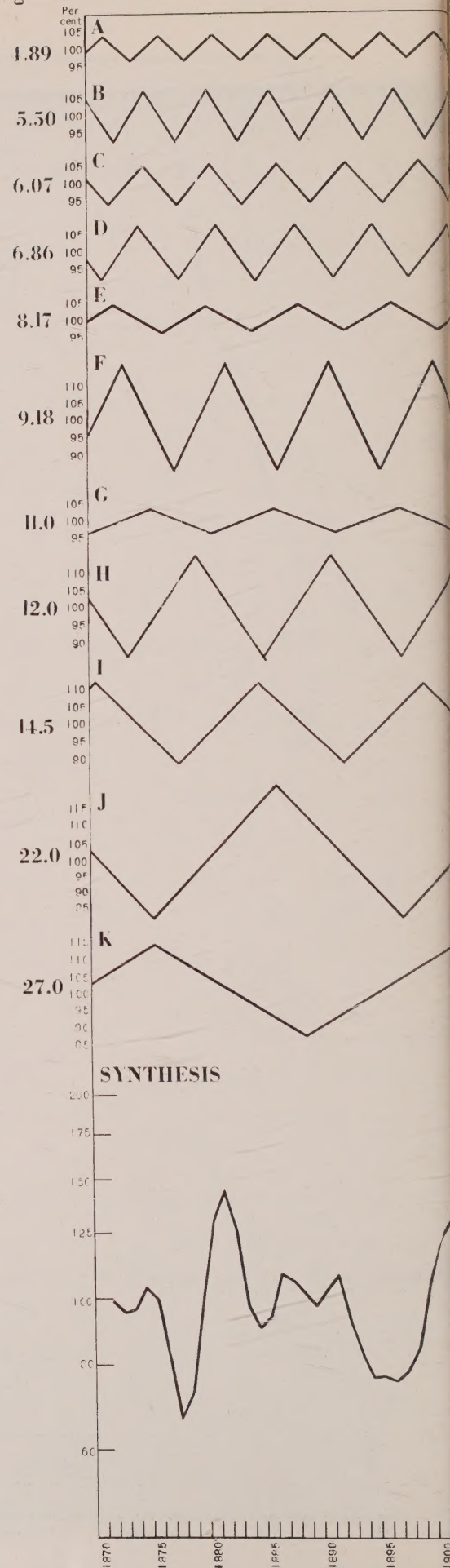
Curves E and F and J were revised for length, amplitude, and timing in 1956. Curve K was added in 1956.

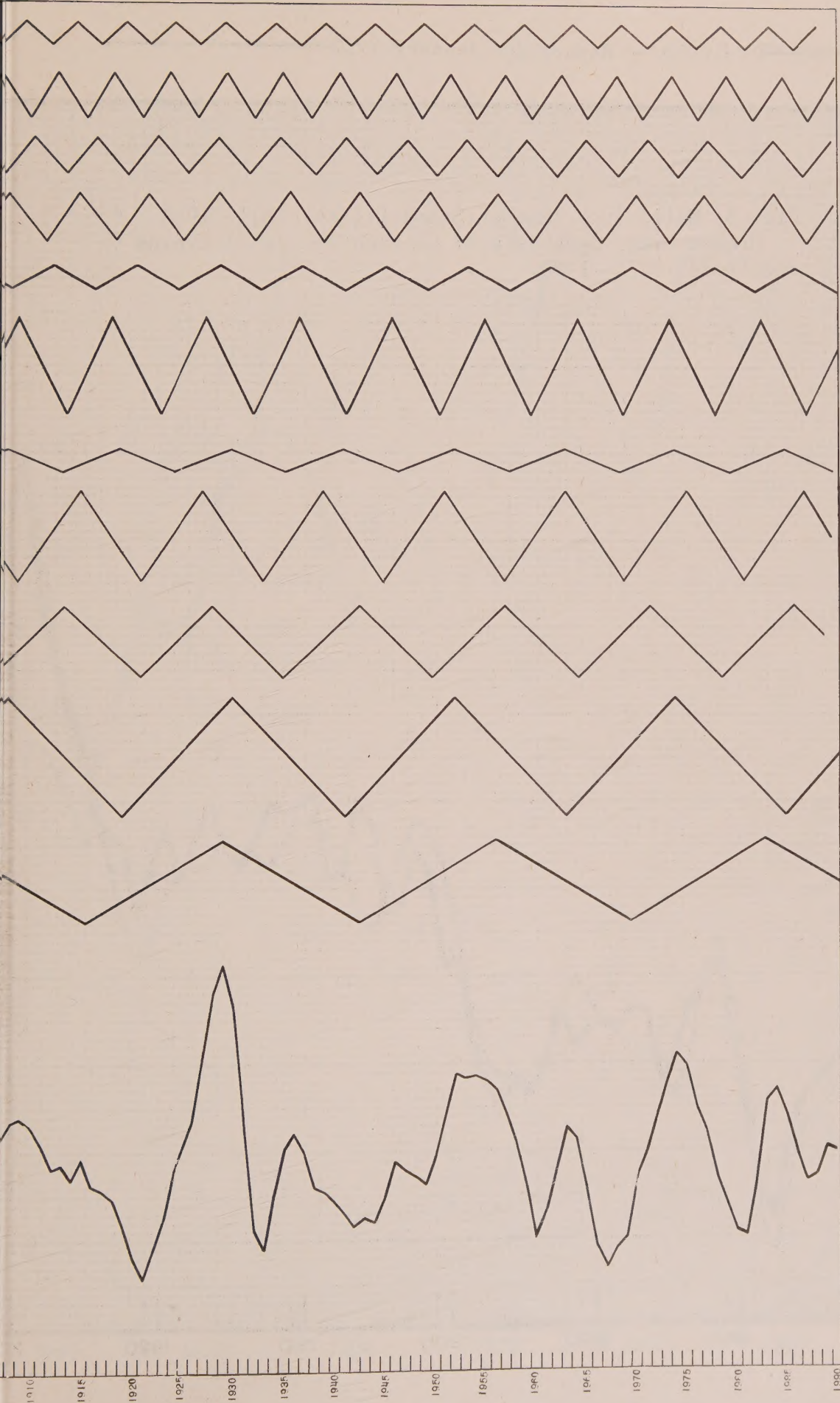
The synthesis shows the combined effect of cyclic forces of these wave lengths, strengths, and timings.

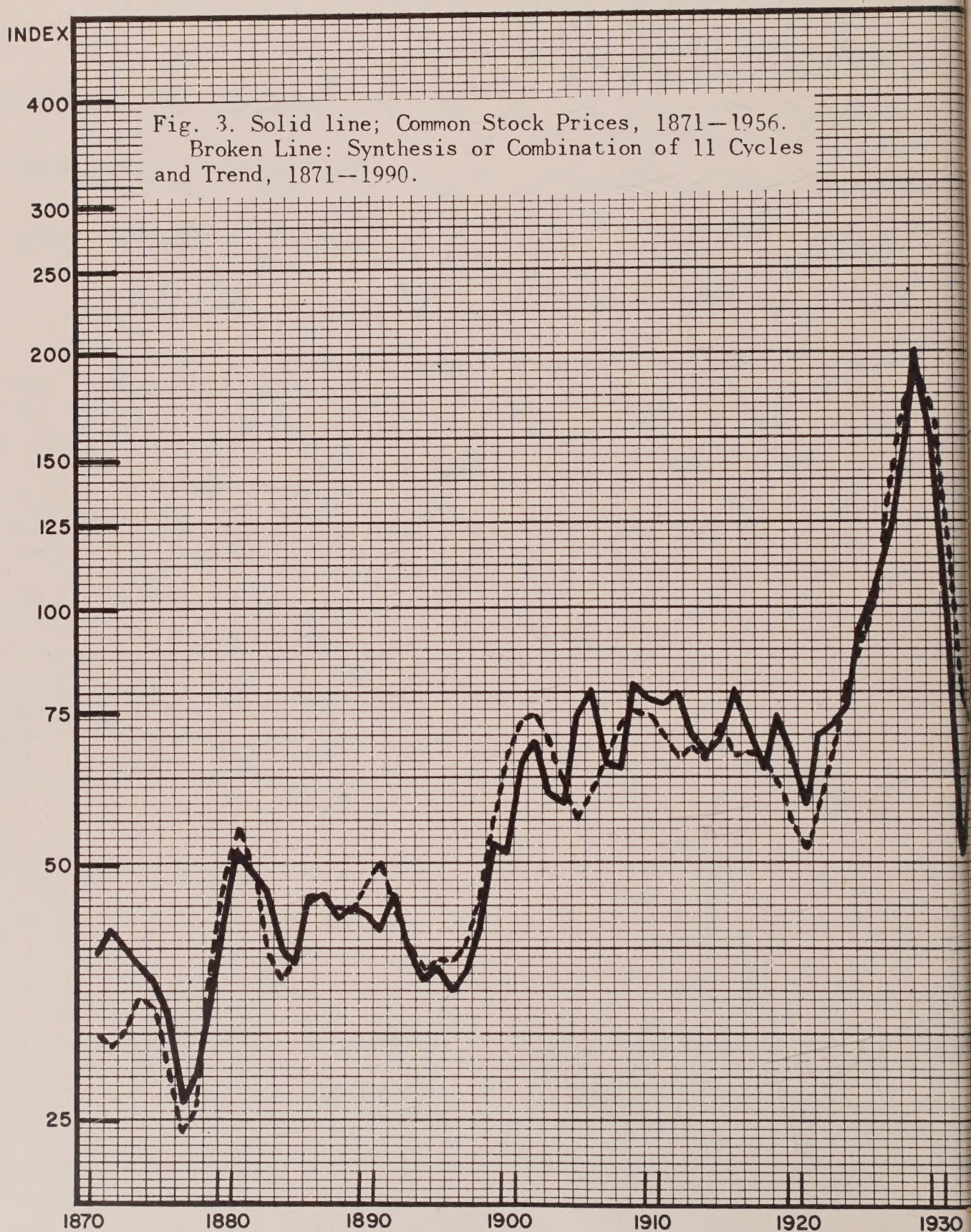
This chart illustrates the principle of cycle combination and shows how any cycle can sometimes be overwhelmed by several other cycles in combination.

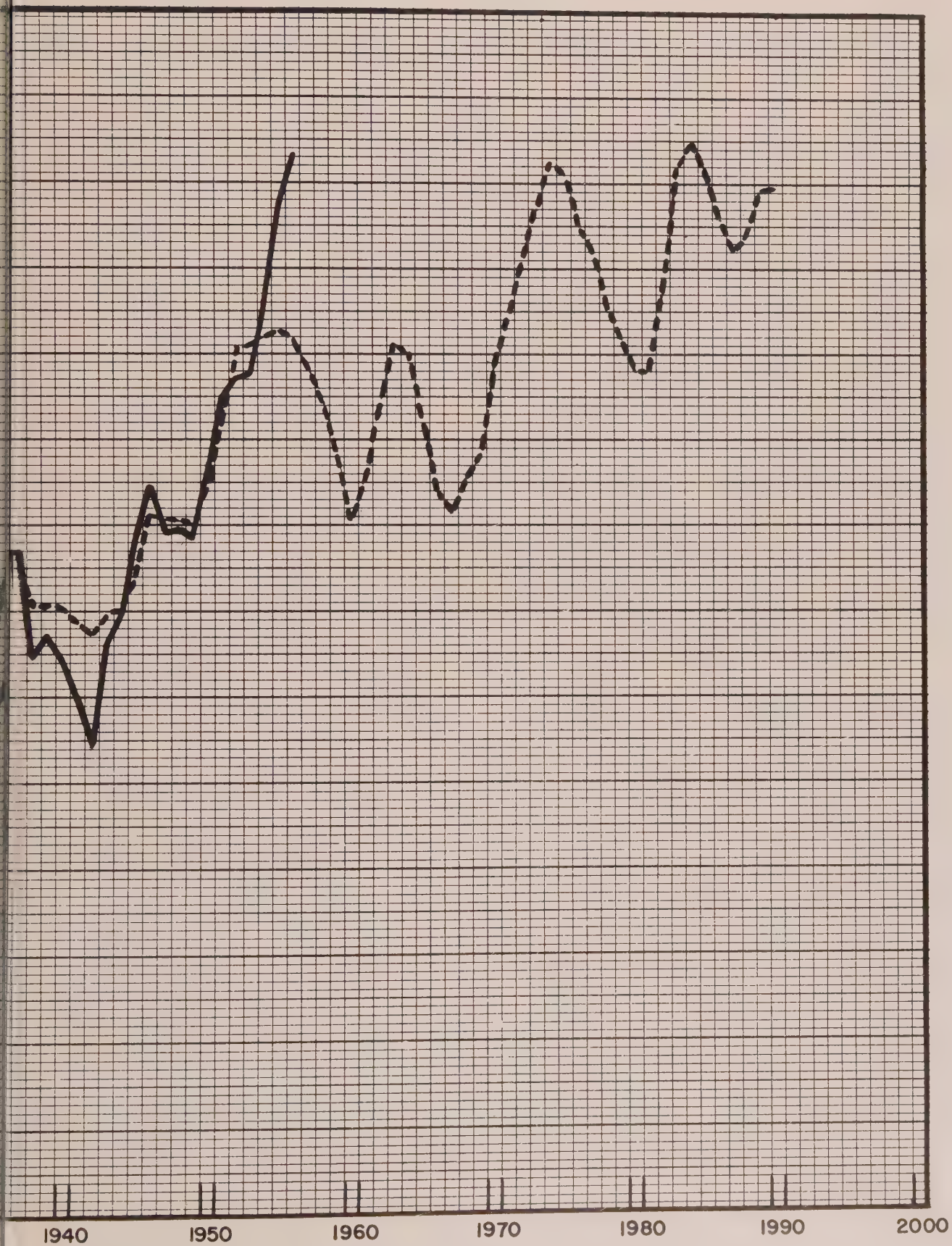
If the indicated cycles have been correctly determined as to length, strength, and timing, if they are real, and if they continue, the projection should bear some relation to actual future behavior.

Length in Years









transactions, 1944 to date.

It is now in order to audit the 1944 research to take account of the 13 additional years of data now available. This audit was begun in 1956. To date cycles number 5, 6, and 10 have been audited; cycle 11 has been added, and the trend has been revised to include later figures.

Present determination of cycle lengths and characteristics are as follows:

Cycle No.	Length in Years	Crest Nearest to Jan. 1, 1957	Strength
1	4.89	1959.3	3.5 %
2	5.50	1958.0	7.0
3	6.07	1954.06	6.0
4	6.86	1957.4	8.3
5	8.17	1954.1	4.7
6	9.18	1955.66	17.1
7	11.0	1952.5	3.8
8	12.0	1951.5	15.1
9	14.5	1957.5	12.25
10	22.0	1952.6	21.6
11	27.0	1956.5	14.3

All of these 11 cycles, correct for shape, timing, and strength, are diagrammed

in Figure 2. Figure 2 also charts their combination or synthesis.

The combination of these 11 cycles and trend, projected to 1990, is shown as a broken line in Fig. 3. The solid line in Fig. 3 represents actual prices, 1871-1956 as drawn in Fig. 1.

The difference between the actual behavior and the cycles is shown in Fig. 4. This difference represents (a) random movements including distortion introduced by inflation, war, etc. (b) cycles not yet isolated, and (c) errors in the length, strength, and timing of the 11 cycles already isolated.

Remember that seven cycles remain to be audited, several more cycles will probably be added. This projection is merely the best I can do at the moment with the facilities available. It is intended for scientific purposes. It is useful to investors for background only. It is much too crude to use for purposes of actual purchase and sale. Still, a forecast which gave a gain-loss ratio of 185 to 1 over a ten year period isn't too bad, is it?

E.R.D.

Fig. 4. The Remainder. The percentages that the actual stock market prices were, year by year, of the synthesis. Ratio Scale.



THE 11-YEAR CYCLE

DISCOVERED BY DR. HYDE CLARKE IN 1847

YOU may recall that in our report for November 1953 I called your attention (page 322) to the fact that W. S. Jevons in 1878, attributed discovery of a 50-year cycle in economics to a Dr. Clarke.

Through the kindness of the Encyclopaedia Britannica Library Research Service I am now able to give you excerpts from Jevon's article. The article was called "Commercial Crises and Sun-Spots." It was published in *Nature* for November 14, 1878, pages 33ff. The article shows that the original observations by Dr. Clarke were made in 1847.

The excerpts follow:

"It is curious to notice the variety of the explanations offered by commercial writers concerning the cause of the present state of trade...

Regularly from 1815-16

"It occurs to but few people to remember that what is happening now is but a mild repetition of what has previously happened time after time. October, 1878, is comparable with May, 1866, with November, 1857, with October, 1847, and, going yet further back, with a somewhat similar condition of things, in 1837, in 1825-26, and even in 1815-16. The incidental circumstances of these commercial collapses have indeed been infinitely diversified...All kinds of distinct reasons can thus be given why trade should be now inflated and again depressed and collapsed. But, so long as these causes are various and disconnected, nothing emerges to explain the remarkable appearance of regularity and periodicity which characterises these events.

Periodicity Remarkable

"The periodicity of the earlier portion of the series is so remarkable that, even without the corroboration since received, it convinced scientific inquirers that there was some deep cause in action. Dr. Hyde Clarke, for instance, wrote, more

than thirty years ago, a paper entitled 'Physical Economy—a preliminary inquiry into the physical laws governing the periods of famines and panics.' This paper was published in the *Railway Register* for 1847, and is well worth reading. In the commencement he remarks: "We have just gone through a time of busy industry, and are come upon sorrow and ill-fortune; but the same things have befallen us often within the knowledge of those now living. Of 1837, of 1827, of 1817, of 1806, of 1796, there are men among us who can remember the same things as we now see in 1847. A period of bustle, or of gambling, cut short in a trice and turned into a period of suffering and loss, is a phenomenon so often recorded, that what is most to be noticed is that it should excite any wonder." Dr. Hyde Clarke then proceeds to argue in a highly scientific spirit that events so regularly recurring cannot be attributed to accidental causes; there must, he thinks, be some physical groundwork, and he proposed to search this out by means of a science to be called Physical Economy. In the third page of his paper he tells us that he had previously written a paper on the laws of periodical or cyclical action, printed in Herapath's *Railway Magazine* for 1838. 'At this time,' he says, 'it was my impression that the period of speculation was a period of ten years, but I was led also to look for a period of thirteen or fourteen years...In the course of these inquiries I looked at the astronomical periods and the meteorological theories without finding anything at all available for my purposes.' A little below Dr. Hyde Clarke continues: —'Still thinking that the interval was an interval of about ten years, I was, during the present famine, led to look for a larger period, which would contain the smaller periods, and as the present famine and distress seemed particularly severe, my attention was directed to the famine so strongly felt during the French Revolu-

tion. This gave a period of about fifty-four years, with five intervals of about ten or eleven years each, which I took thus:—

1793 1804 1815 1826 1837 1847.'

"Dr. Hyde Clarke was by no means the only statistic who adopted a theory of periodicity thirty or forty years ago...

"The peculiar interest of Dr. Hyde Clarke's speculations consists in the fact that he not only remarked the cycle of ten or eleven years, but sought to explain it as due to physical causes al-

though he had not succeeded in discovering any similar astronomical or meteorological variation with which to connect it. Writing as he did in 1838 and 1847, this failure is not to be wondered at. His supposed period of fifty-four years is perhaps deserving of further investigation, but it is with his period of ten or eleven years that we are now concerned.

"For my own inquiries into this interesting subject naturally fall much posterior to those of Dr. Clarke..."

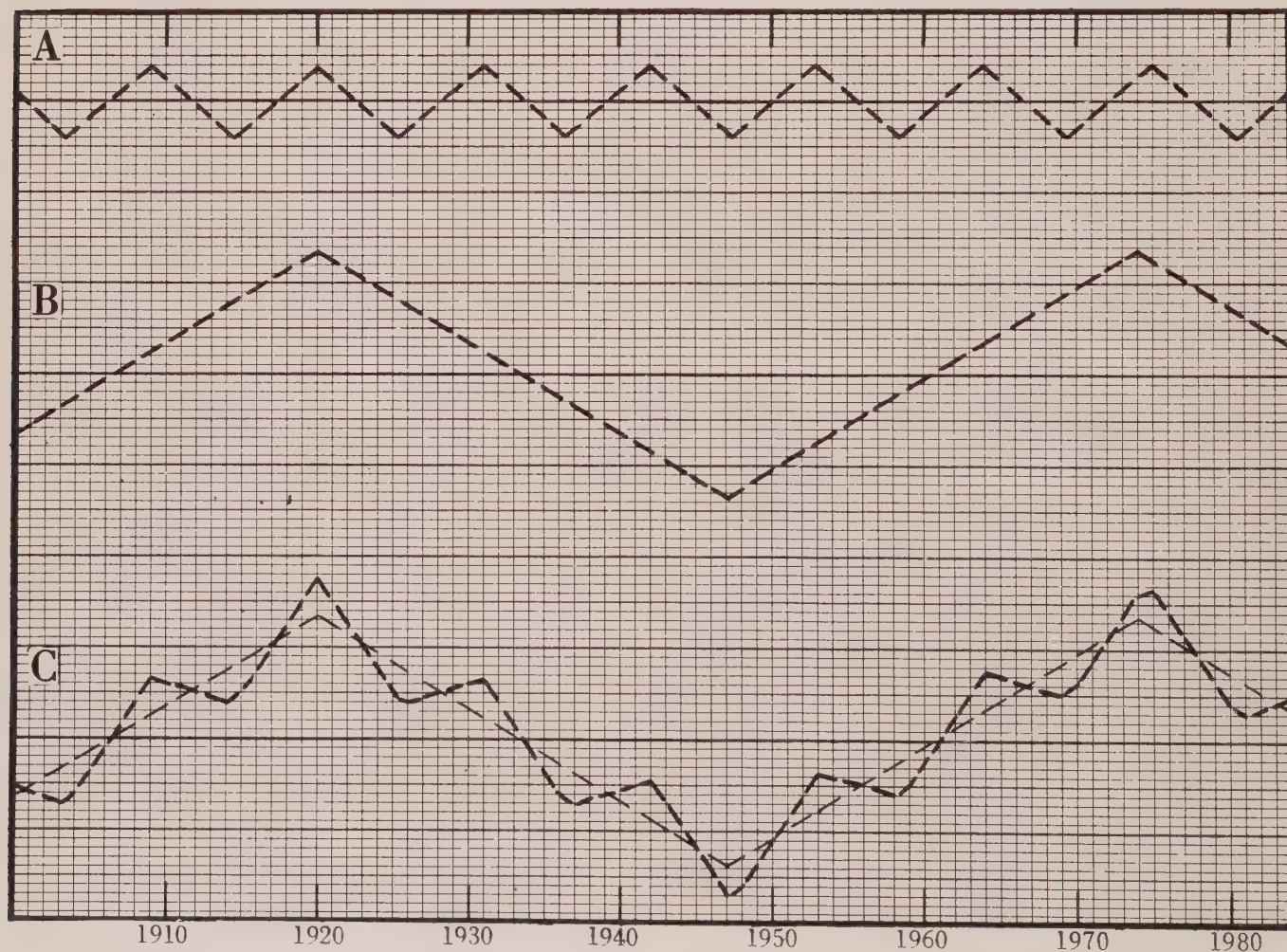


DIAGRAM TO ILLUSTRATE THE COMBINATION OF 11- AND 54-YEAR CYCLES.

Curve A. Diagram of an 11-year cycle.

Curve B. Diagram of a 54-year cycle.

Curve C. Diagram of their combination

The 11-year cycle wraps around the 54-year cycle as illustrated.

● ● ● ●

Discussion: It seems clear that Dr. Clarke was not talking of a 54-year cycle in the sense in which we now use the term, i.e. to indicate a tendency for 27 years of strength followed by 27 years of weakness. Rather, he was speaking of 11-year cycles, every fifth of which was more pronounced than usual—a *beat*, as it were.

Such a beat *could* be caused by a 54-year cycle, as in Fig. 1, but the sort of thing he seems to be talking about is much more likely to be caused by the concurrent presence of one or more other cycles, also unit fractions of 54 years.

That is, if you combine an 11-year cycle (about $1/5$ of 54 years) with any

other unit fraction of 54 years ($1/2$ or 27 years, $1/3$ or 18 years, $1/4$ or 13 $1/2$ years, $1/6$ or 9 years, etc.), you will get a beat at about 54 year intervals. See Fig. 2. If *all* the cycles involved are exact unit fractions of 54 years and continue, the beat will continue. However, if the component cycles are slightly longer or slightly shorter than exact unit fractions of 54 years, they will pull apart and the beat will disappear until they get together again.

Significance. I do not believe we can credit Dr. Clarke with the discovery of the half-century cycle in economic affairs. Credit must still go to Kondratieff.

We can, however, credit him with the discovery in 1838 of the 11-year cycle—a cycle which is still present. E.R.D.



DIAGRAM TO ILLUSTRATE THE COMBINATION OF 9- AND 11-YEAR CYCLES.

The Combination Shows an Extra Large Peak at Year 20 and Again at Years 65 and 75.

Curve A. Diagram of a 9-year cycle.

Curve B. Diagram of an 11-year cycle.

Curve C. Diagram of their combination.

Note how, when the two cycles are in step, we get extra big waves. When they are out of step, the waves almost vanish. Then, as they get back in step, the waves reappear. This behavior continues at half-century intervals.

THE STOCK MARKET CYCLE SYNTHESIS

I AM continuing the "audit" of my stock market work of 1944.

As you know, I reduced the length of the so-called 9-year cycle from 9.2 to 9.18 years. I left the length of the so-called 8-year cycle unchanged at 8.17 years. I added the 27-year cycle. I increased the length of the 21-year cycle to 22 years. I revised the trend. And now, as the next step in this audit, I am reducing the length of the so-called 6-year cycle from 6.07 years to 5.91 years.

As yet I have not audited the other 6 cycles, but I shall do so as rapidly as possible—I hope at the rate of about one a month. I also plan to compute the values of an inflation factor.

I have not yet reported upon the work

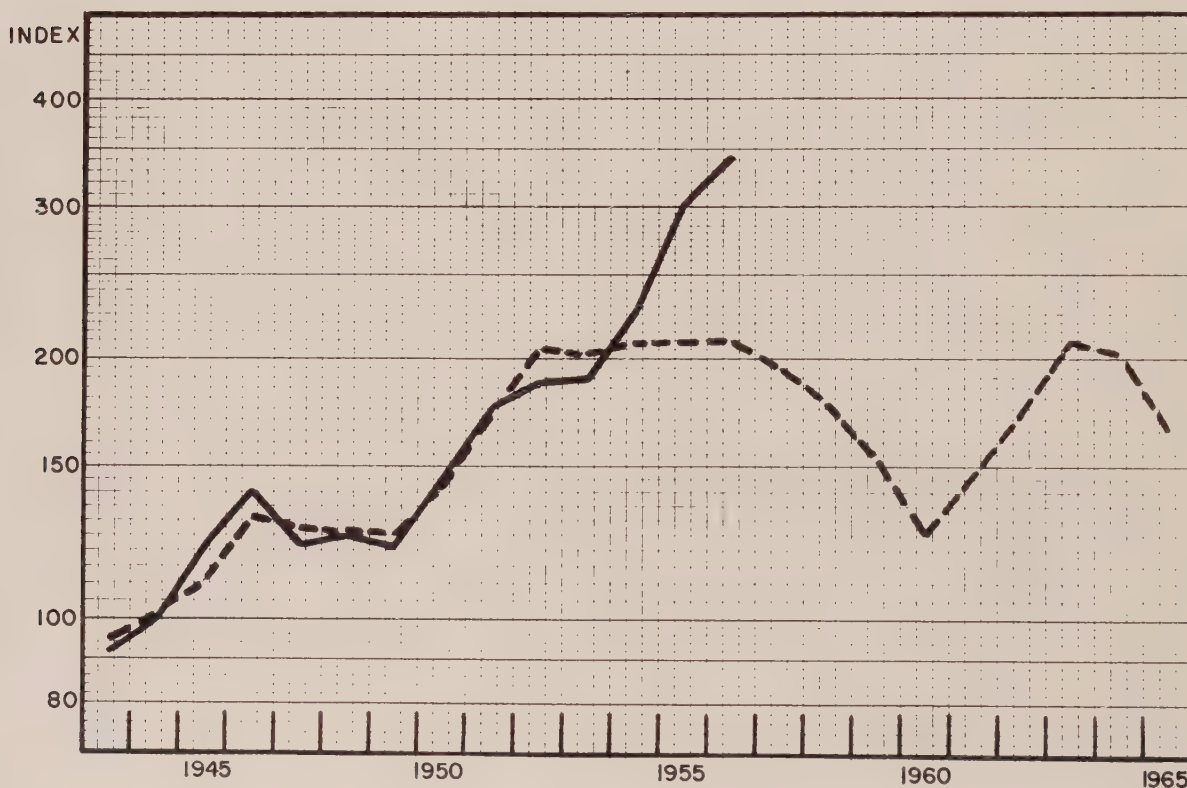
in connection with the 5.91-, 22-, and 27-year cycles, I shall do so in early issues.

The combination of the cycles as described above is shown below, 1943--1965 by means of a broken line. The actual prices are shown by a solid line. You will note that the combination crests in 1956 and declines to 1960, then advances to 1963.

Remember that this combination of cycles does not contain any cycles less than 4 years in length. Until we can introduce some shorter cycles we cannot hope to pinpoint the turns except by luck.

Remember too that the inflation factor is not yet included and that the audit is not yet completed.

E.R.D.



Solid line; 1943--1956, Standard & Poor's Corporation Combined Stock Price Index (1935-39 = 100), as this index actually unfolded.

Broken line, 1943--1965, a combination of the 6 cycles as determined in 1944, trend and a 27-year cycle as determined in 1956 and the 22-, 9.18-, 8.17-, and 5.91-year cycles as revised in 1956.

THE 1957 POSTSCRIPT

TO

CYCLES—THE SCIENCE OF PREDICTION

PART XI: THE 5.91-YEAR CYCLE

WHAT is it going to be today?" said my friend Robert Steele as we settled ourselves for our weekly chat about cycles.

"I think this would be a good day to discuss the 5.91-year cycle," I answered. "It is quite important and very well substantiated."

"Where did you first find it?" asked Robert.

In Cotton Prices

"In cotton prices from crop year 1731-32 through crop year 1947-48."

"What is the crop year for cotton?"

"August 1st of one year through July 31st of the year following."

"When did you make the discovery?"

"Early in 1949—March 9 is you want the exact day."

"How do you know?"

"I date all my work sheets."

"Has this cycle in these figures kept on coming true since discovery?"

"Yes, in the sense that purchases and sales made on the basis of it would have shown a nice net profit."

"Where else has it been discovered?"

In Other Things

"Here is the complete list," I answered. "Tree ring widths at Fairlee, Vermont, combined stock prices, industrial stock prices, rail stock prices, business failures, cotton prices, pig iron prices, copper prices, wheat prices, and barometric pressure at Batavia. Here is a table summarizing what has been found out to date." [See p. 20 for table, p. 21 for references]

"I notice sunspots listed in the table.

You forgot to mention them."

"No," I answered. "I didn't forget. The work done with sunspots, alternate cycles reversed, merely shows that if there is a 5.90-year cycle it currently crests at 1955.61. So far, the work has not been done to show whether there is a cycle of about this length, and if so, what its exact length is. If the length turns out to be other than 5.90—5.91 or 5.93 for example—the timing would be a little different."

Lengths Differ Slightly

"Yes," said Robert. "I notice that many of the lengths differ slightly. They range all the way from 5.90 to 5.97. Why is this?"

"They may be different cycle lengths, or the difference may be the result of inadequate techniques or distortion caused by other cycles of closely related wave length."

"Don't you think all of these are the same wave length, really?"

"Well, except for barometric pressure and European wheat prices, they are awfully close to each other, but I'm not sure."

"What is the true length?"

Typical Length 5.915 Years

"I don't know. An average of all the lengths turns out to be 5.925; the median length is 5.915; however, the length in the longest string of figures, tree rings, is 5.933."

"What do you mean by the word 'median'?"

"The median is the middle value (or an average of the two middle values), when the figures are ranked according to size. Here

for example, arranged in order of size we have 5.97, 5.96, 5.933, 5.93, 5.92, 5.91, 5.91, 5.91, 5.90. The two middle values are 5.91 and 5.92. Their average is 5.915."

Hair Splitting

"Why all this hair-splitting on length?"

"Because if we know the *true* length we might get a clue to *cause*. You'll notice that in the table I've listed three astronomical lengths—half the time it takes the planet Jupiter to go around the sun, 5.931 years; one fifth the time it takes the planet Saturn to go around the sun, 5.892 years; and one forty-second of the time it

takes the planet Pluto to go around the sun 5.915 years. If the cycles are tied to any of these lengths we would have a clue to a possible cause. However, the series of figures are not long enough to say for sure, one way or the other."

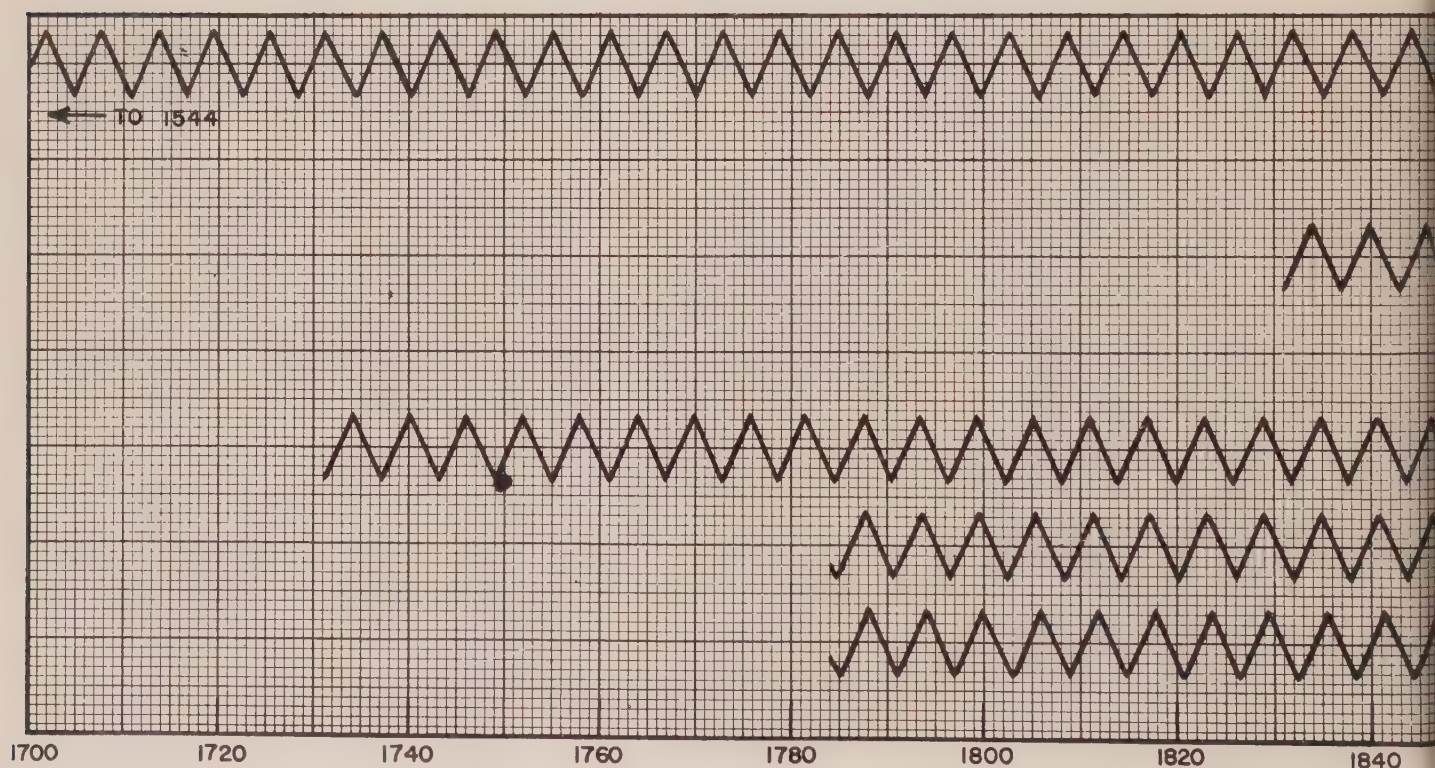
"What does the length of the series of figures have to do with it?"

Cycles Can Be Measured More Accurately in Long Series of Figures

"The longer the time over which the figures are available, the more accurately we can measure the length of the cycle."

"Do you really think the planets have anything to do with the cycles we find here

DIAGRAM TO SHOW



This diagram illustrates the timing of the 5.91-year cycle in various phenomena,

and the length of the series of figures in which it has been observed. The fact that

on earth."

"I don't think we've enough facts on which to base our opinion. However, there is enough correspondence of wave length between cycles in human affairs and astronomical cycle lengths to warrant further investigation."

Astronomical Cycle Length

"What do you mean—'astronomical cycle lengths'?"

"Particularly, the time it takes the various planets to go around the sun, and fractions of those times; the time it takes for two or more planets to line up with each other and the sun, and fractions of

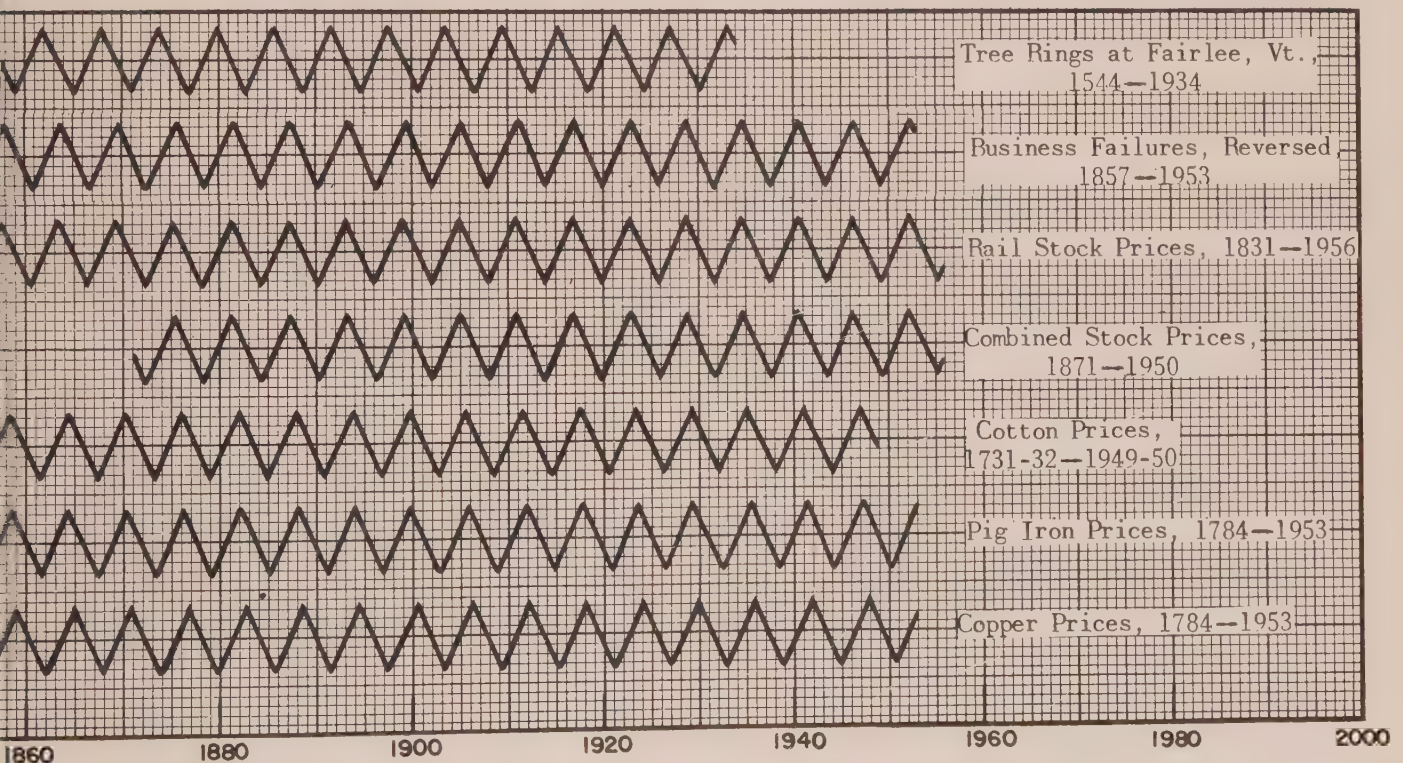
those times. But there are other astronomical cycle lengths too, for example the time it takes comets to go around the sun; the time it takes the various moons to go about their planets; etc."

Ideal Turning Points

"Where are we in this 5.91-year cycle, or whatever its length is?"

"The time of the ideal crest differs a little for each thing. Disregarding sunspots, where the time given doesn't mean anything until we know for sure that the length is 5.90 years, the earliest turner is tree rings in Vermont. Their next ideal turn (crest) comes in 1957.35 (May 8th

THE 5.91-YEAR CYCLE



the cycle in the tree rings at Fairlee, Vermont, has a slightly different length

and comes at a slightly different time suggests that it is probably a different cycle

1957). Next comes business failures, *trough* in 1958.65 (Aug. 25th 1958); rail stock prices, 1958.68 (Sept. 5th 1958); combined stock prices, 1958.69 (Sept. 9th 1958); cotton prices, 1959.28 (April 12th 1959); pig iron prices, 1959.525 (July 10th 1959); and copper prices, 1959.89 (Nov. 21st 1959), in that order. I don't know the ideal time of the crest for European wheat prices, barometric pressure in Batavia, or for industrial stock prices."

"Of course that doesn't mean the *actual* crest of prices will come on those dates does it?" said Robert.

"Oh good gracious, no!" I said. "This is only one of many many cycles in each of these things. It's the *combination* of all the different cycles that throws light on the timing of the *actual* high and low."

"These cycles certainly bunch don't they."

Ideal Cycle Turning Points Bunch

"Yes, they do. Ideal time of crest (except for business failures, where we always have to use *trough*), comes within 1.3 years one way or the other of typical timing. Of course I'm disregarding sunspots on which, as I have said, more work needs to be done before we can date them for sure."

"What is typical timing?"

Typical Timing

"For the current crest, 1958.62 (Aug. 14th 1958). That's the middle date around which the other things group."

"Do you believe the 5.91-year cycle is a real cycle—that is, that it isn't in all these figures just by accident?"

"Yes, definitely."

"Why?"

SUMMARY

5.91-Year Cycle

Ref.	Phenomena	Span of Years	Cycle Length	Time of Current Crest	Strength vs. Trend	
					Above	Below
1	Sunspots, with Alternate Cycles Reversed, 1749—1937	189	5.90	1955.61	Index of 1	
2	Tree Rings at Fairlee, Vermont, 1544—1934	391	5.933	1957.35	u	u
3	Liabilities of Business Failures, 1857—1953	97	5.9	*1958.65	12.5	11.1
4	Index of Railroad Stock Prices, 1831—1956	126	5.92	1958.68	8.6	8.0
5	Combined Index of Stock Prices, 1871—1956	86	5.91	1958.69	6.4	6.0
6	Cotton Prices, 1731-32—1949-50	219	5.91	1959.28	6.7	6.2
7	Pig Iron Prices, 1784—1953	170	5.91	1959.525	5.5	5.1
8	Copper Prices, 1784—1953	170	5.91	1959.89	5.6	5.3
9	European Wheat Prices	300	5.96	u	u	u
10	Barometric Pressure in Batavia, 1866—1940	75	5.97	u	u	u
11	Index of Industrial Stock Prices, 1871—1950	80	5.93	u	u	u
12	One half Siderial Period of Jupiter	--	5.931	u	u	u
12	One fifth Sidereal Period of Saturn	--	5.892	u	u	u
12	One forty-second of the Sidereal Period of Pluto	--	5.915	u	u	u

* trough

u unknown

"Well, for one thing it's so strong in the various places we find it. It often dominates so that you can see it as a rhythm in a chart of the raw unadjusted figures."

"What else?"

"It's kept on coming true since discovery."

"Anything else?"

"Yes. It's length seems to be related by multiples of two and-or three to many other well known cycle lengths. That is, it seems to be one of a family of cycles."

"You haven't told me much about that." said Robert.

"No? Well it's most interesting. I call this one the 17.75-year family. Cycles have been found with lengths within 1 or 2% of eighteen different simple multiples and fractions of 17.75 years."

If you are interested you can get a full discussion in *Cycles* for January 1955."

"It certainly is intriguing that the cycle lengths fit together that way. Do you have any idea why?"

"No."

"Do these lengths tie to any astronomical lengths?"

"Well, one-fourteenth of the time it takes Pluto to go around the sun is 17.744 years."

"Do you find other families based on fractions of other planetary lengths?"

"Yes."

"Curious!" said Robert. "And now I'd like to see the charts of these various 5.91-year cycles."

"I'm sorry," I said. "I don't have any of them here. How about putting that off until our next meeting."

"All right." said Robert. "I've got to be getting home anyway, and you've given me plenty to think about for much more than a week!"

E.R.D.

REFERENCES

1. Anderson, C. N., for cycle length, "A Representation of the Sunspot Cycle," *Bell System Technical Journal*, Vol. XVIII, April, 1939, pp. 292-299; for cycle strength and timing, supplemental material published in *Cycles*, Vol. IV, No. 5, May 1953, p. 148.
2. Dewey, E. R., manuscript to be published. See also "The 6-Year Cycle," *Cycles* Vol. I, No. 5, December 1950, p. 3-17.
3. Dewey, E. R., "Business Failures—Liabilities of Commercial and Industrial Failures in the United States, 1857-1953," *Cycles*, Vol. IV, No. 8, October 1953, pp. 255-272.
4. Dewey, E. R., manuscript to be published. See also "Possible Cycles in Railroad Stock Prices, 1871-1950," *Cycles*, Vol. III, No. 4, April 1952, p. 123-29.
5. Dewey, E. R., manuscript to be published.
6. Dewey, Edward R., "War Cycles and the 6-Year Cycle in Cotton Prices, 1731-1949," *Journal of Cycle Research*, Vol. I, No. 1, Winter 1952-52, pp. 35-42. — "The 5.91-Year Cycle in Cotton Prices," *Cycles*, Vol. V, No. 8, October 1954, pages 277-283.
7. Dewey, E. R., manuscript to be published, See also "Possible Cycles in Pig Iron Prices, 1784-1951," *Cycles*, Vol. III, No. 6, June 1952, pp. 207-9.
8. Dewey, E. R., manuscript to be published.
9. Beveridge, Sir William H., 1922, "Wheat Prices and Rainfall in Western Europe," *Journal, Royal Astronomical Society*, 85:412-78, London, as quoted by Huntington Ellsworth, in *Mainsprings of Civilization*, N. Y., 1945, p. 460. See also Davis, H. T., *The Analysis of Economic Time Series*, Bloomington, Ind., 1941, pp. 312-17.
10. de Boer, H. J., "Further Researches into the Physical Reality of Some Long-Period Cycles in the Barometric Pressure of Batavia," *Verhandelingen 30*, Meteorological and Geophysical Service, Department of Public Works and Communication, Batavia, 1946.
11. Dewey, E. R., "Possible Cycles in Industrial Stock Prices, 1871-1950." *Cycles*, Vol. III, No. 5, May 1952, pp. 166-179.
12. Skilling, W. T., and Richardson, R. S., *Astronomy*, N. Y., 1947, p. 673.

THE MODIFIED GEISINGER INDICATOR

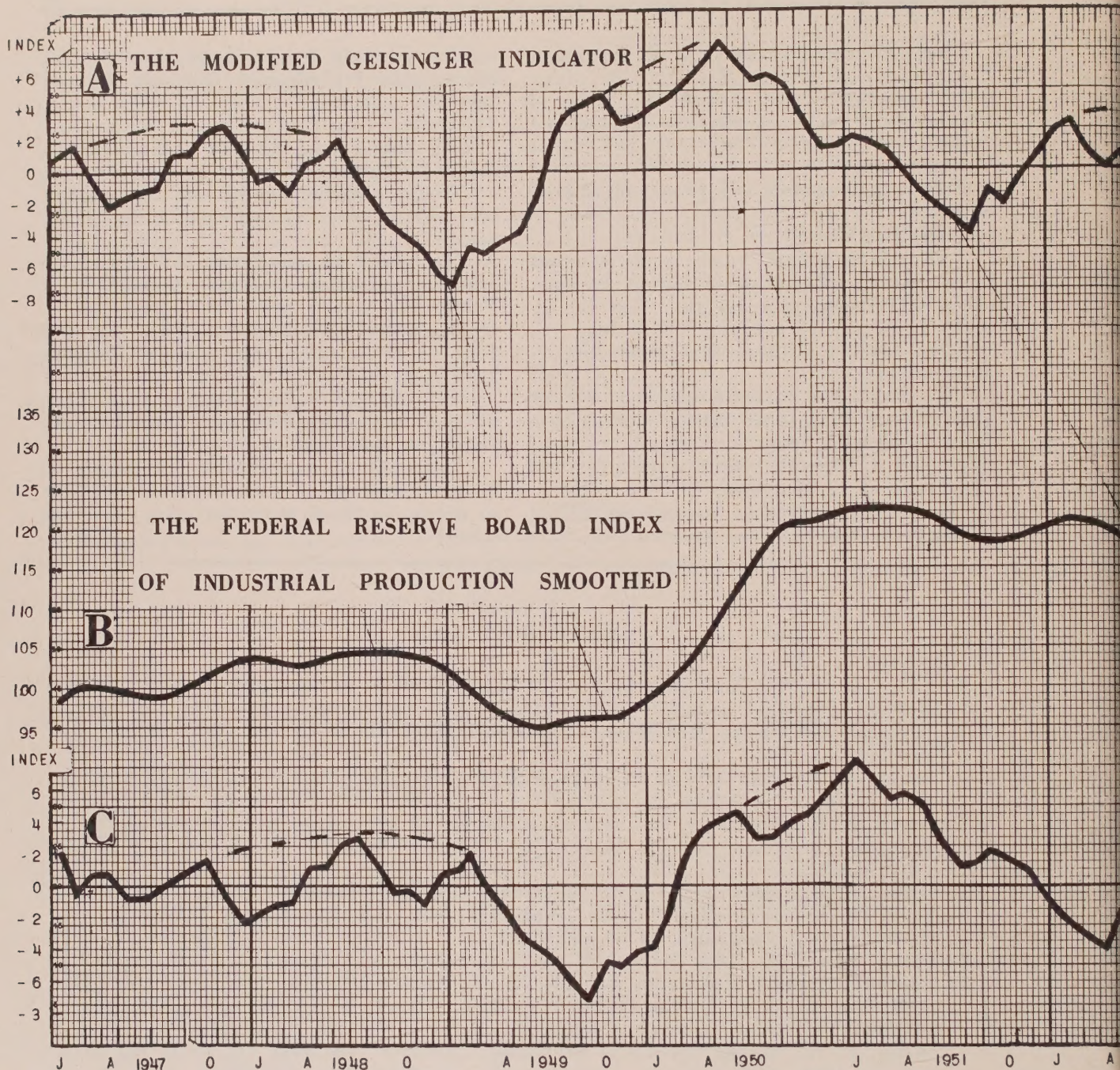
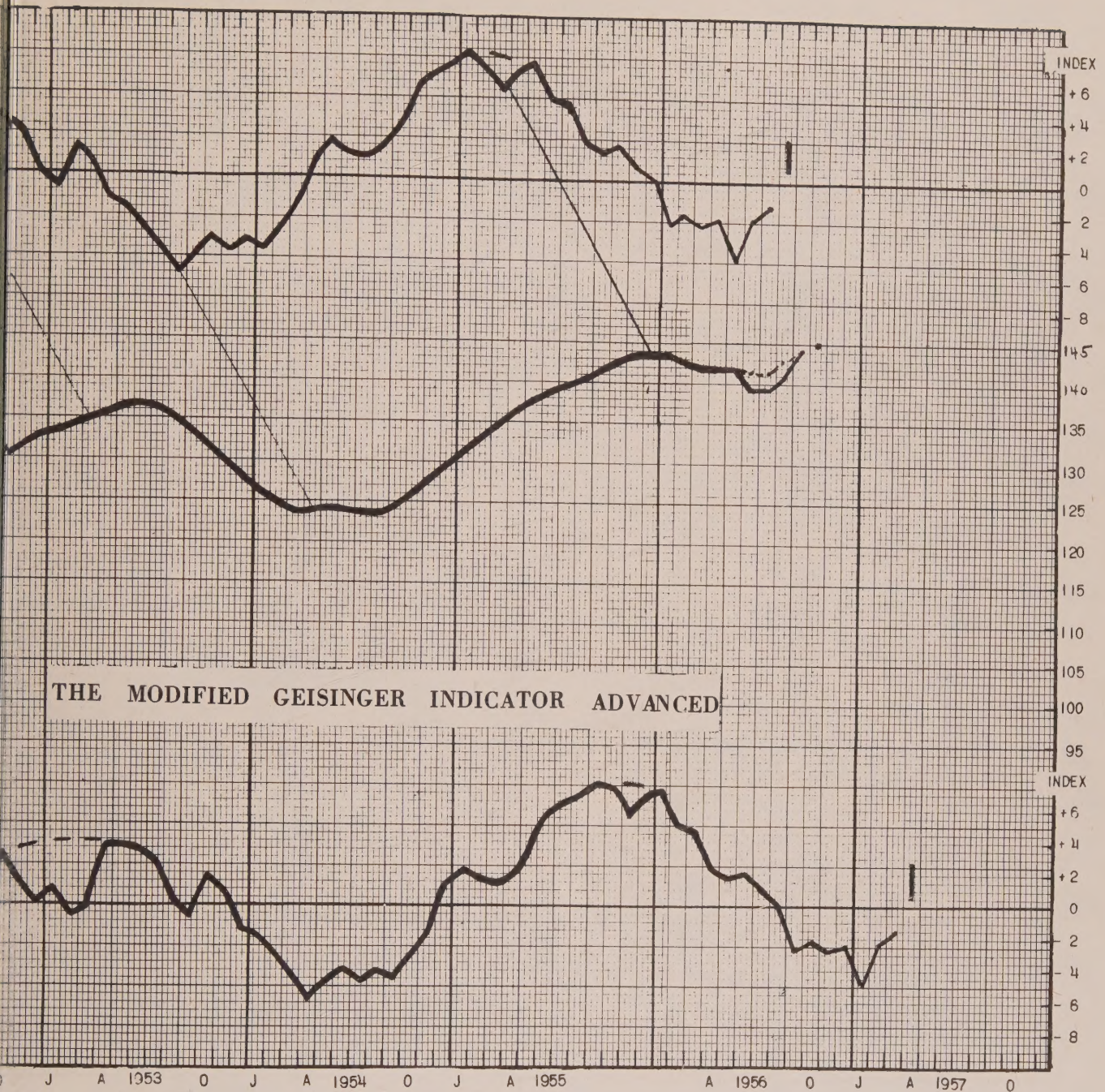


Fig. 1. Curve A. The Modified Geisinger Industrial Production Indicator Curve. This curve is derived from certain figures which are published monthly in the *Survey of Current Business*. It tends to turn about 8 months before the Federal Reserve Board Index of Industrial Production.

Curve B. The Federal Reserve Board Index of Industrial Production adjusted for seasonal variation and smoothed by a 3-month moving average. The value for the latest available month is shown by a dot.

Curve C. This Curve is the Modified Geisinger Industrial Production Indicator Curve advanced by 8 months. This process projects part of the curve into the future. If the relationships of the past continue, the projection gives some hint of what may happen to the Federal Reserve Board Index of Industrial Production (Curve B).

OF INDUSTRIAL PRODUCTION



THE FORECAST

The Modified Geisinger Indicator for July 1956 (March 1957, when projected) is -1.56. This is an advance of .54 from the value for June 1956 (February 1957, when projected).

Assuming no revision of component figures already published, the value for August 1956 (April 1957 when projected) will lie between .86 and 2.86.

These values are based on "bridged" F.R.B. Index of Industrial Production values as discussed last month.

The smoothed F.R.B. Index of Industrial Production values are 141.0 (revised) for August, 144 for September. If we bridge the strike month, the values are 142.8 (revised) for

August, 144 for September.

I continue to feel that the present relationship between the Modified Geisinger Indicator and the F.R.B. Index of Industrial Production is akin to the relationship of 1951. The Indicator will have to get very much stronger - up to 3 anyway - before it will suggest anything to correspond to the 1952-1953 advance or the 1954-1955 advance. "Caution and watchful optimism and the possibility of some dip in 1957" would be my idea of what the Modified Geisinger Indicator is trying to tell us at the present time.

November 30, 1956

E.R.D.

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